THERMAL AND PHASE STUDIES OF MAGNESIUM OXIDE SYNTHESIZED BY USING TWO TYPES OF GELATING AGENT

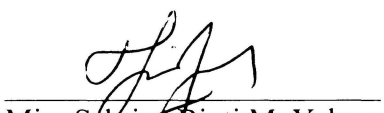
UMMI SHAFIKAH BINTI AHMAD BASA

Final Year Project Report Submitted in
Partial Fulfilment of the Requirements for the
Degree of Bachelor of Science (Hons.) Applied Chemistry
in the Faculty of Applied Sciences
Universiti Teknologi MARA

MAY 2010

This Final Year Project Report entitled **"Thermal and Phase Studies of Magnesium Oxide Synthesized by Using Two Types of Gelating Agent"** was submitted by Ummi Shafikah Binti Ahmad Basa, in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Applied Chemistry, in the Faculty of Applied Sciences, and was approved by

Mr. Mohd Sufri Bin Mastuli
Supervisor
B. Sc. (Hons.) Applied Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
40450 Shah Alam
Selangor



Miss Sabrina Binti M. Yahaya
Project Coordinator
B. Sc. (Hons.) Applied Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
40450 Shah Alam
Selangor

Dr. Siti Halimah Binti Sarijo
Head of Programme
B. Sc. (Hons.) Applied Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
40450 Shah Alam
Selangor

Date: 21/5/2010

ACKNOWLEDGEMENTS

First of all, thanks to Allah SWT, the Most Gracious and the Most Merciful, for giving me good health and energy by giving the strength to complete this final year project of research on Thermal and Phase Studies of Magnesium Oxide Synthesized by using Two Types of Gelating Agent of Thesis II (CMT 679).

I would like to express my profound gratitude to my supervisor, Mr. Mohd Sufri bin Mastuli which gives me the guidance and knowledge continuously about how to do this research, valuable advices and comments while doing this project.

I am also grateful to express my appreciation to all laboratory assistances for their help and cooperation during the entire progress of this project. Also thanks to my family and friends this gives support in doing this.

Lastly, thanks directly or indirectly to persons that contributed to this report for their help and support. I will remember and appreciate everything that they had done for me.

Ummi Shafikah Ahmad Basa

TABLE OF CONTENTS

ABSTRACT

THERMAL AND PHASE STUDIES OF MAGNESIUM OXIDE SYNTHESIZED BY USING TWO TYPES OF GELATING AGENT

Magnesium oxide (MgO) nanopowder was synthesized by using sol-gel method. The starting materials were used are magnesium acetate tetrahydrate and two types of gelating agent which are oxalic acid and tartaric acid with ethanol as a solvent. The annealing treatment involves at different time which at 1, 3 and 6 hours with different temperature at 550, 600 and 650°C. The magnesium oxide nanopowders were characterized by using thermal gravimetric analysis (TGA) and X-ray powder diffraction (XRD). The thermal behavior for both gelating agents showed their stability at 500°C and 450°C for oxalic acid and tartaric acid respectively. All products were showed their purity when all of the peaks occur at a single phase in XRD spectra.